MONO COUNTY GENERAL PLAN DRAFT EIR

SECTION 4.14

NOISE

4.14.1 INTRODUCTION AND SUMMARY

Noise has a significant effect on quality of life, and excessive noise can affect human health and well-being. Although noise effects are often transitory, adverse effects can be cumulative with prolonged or repeated exposure. The effects of noise can be organized into six broad categories: noise-induced hearing loss; interference with communication; effects on sleep; effects on performance and behavior; extra-auditory health effects; and annoyance.

The General Plan Noise Element enables the County to identify noise sources that interfere with community safety and comfort, and to establish policies and programs that limit the community's exposure to excessive noise levels. To achieve these goals, the Noise Element provides quantitative and qualitative information concerning the noise environment, identifies strategies to abate excessive noise and protect sensitive noise receptors, and sets standards to ensure compliance with adopted noise exposure limits.

An overview of baseline conditions is provided below to facilitate understanding of impacts and recommended policy mitigations. A more detailed discussion of baseline noise conditions is provided in the Mono County MEA, which has been updated in concert with the current *RTP/General Plan EIR*. The full text of the *Draft Noise Element* and MEA Chapter XVI are available online at http://www.monocounty.ca.gov/documents. No NOP comments addressed topics pertaining to noise. Key findings of the §4.14 impact analysis and recommended mitigating policies are summarized in the table below:

SUMMARY OF GENERAL PLAN IMPACTS & POLICY MITIGATIONS FOR NOISE

IMPACT RTP 4.14(a):	**EXPOSURE TO EXCESSIVE NOISE LEVELS**
Pre-Mitigation Significance:	**Less than Significant**
Mitigating Policies:	**See Table 4.14-11 in Appendix D**
Residual Significance:	**Less than Significant**
IMPACT RTP 4.14(b):	**EXPOSURE TO EXCESSIVE AIRPORT NOISE**
Pre-Mitigation Significance:	**Less than Significant**
Mitigating Policies:	**See Table 4.14-11 in Appendix D**
Residual Significance:	**Less than Significant**
IMPACT RTP 4.14(c):	**EXPOSURE TO GROUNDBORNE VIBRATION OR NOISE**
Pre-Mitigation Significance:	**Less than Significant**
Mitigating Policies:	**See Table 4.14-11 in Appendix D**
Residual Significance:	**Less than Significant**

4.14.2 KEY TERMS USED IN THIS SECTION

Ambient Noise: The background noise level at a given location. The ambient noise level constitutes the normal or existing level of environmental noise at a given location and is a composite of sounds from many sources, near and far. Identifiable but isolated noise sources (such as airplanes or heavy equipment) are not taken into account.

A-Weighted, dBA: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. In general, a sound level must change by at least 3 dB to be perceptible to the human ear, and a sound must be about 10 dB greater than the reference sound to be judged as twice as loud.

Community Noise Level Equivalent (CNEL): The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.

Day-Night Average Sound Level (Ldn): Average sound exposure during a 24-hour day, calculated from hourly Leq values; nighttime Leq values are decreased by 10 dB to reflect the greater disturbance potential of nighttime noises.

Decibel, dB: A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure.

Equivalent Sound Level (Leq): The level of a steady-state sound that, during a stated time and at a stated location, has the same sound energy as the time-varying sound (roughly equal to the average sound level). Leq is typically measured over 1-, 8-, and 24-hour sample periods. The one-hour Leq measurement is called the hourly Leq or Leq(h).

Intrusive: That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

L10 and Ldn: L10 is the A-weighted sound level that is exceeded 10% of the time. Similarly L50, L90, etc. Ldn is the day-night average sound level over a 24-hour period. To account for lower nighttime background noise, the average for noise between the hours of 10pm and 7am is artificially increased by 10 dB.

Noise Contours: Lines drawn about a noise source indicating equal levels of noise exposure (typically 45, 55, or 65 Ldn). Noise contours are used to establish land use planning criteria for noise.

Noise Zones: Defined community areas where ambient noise levels are generally similar (i.e., within a range of 5 dB). Typically, all other things being equal, sites within any given noise zone will be of comparable proximity to major noise sources. Noise contours define different noise zones.

Noise-Sensitive Land Uses and Receptors: Noise-sensitive land uses in Mono County include residential areas, schools, hospitals, and certain open-space areas that are valued for recreational use or as wildlife habitat or wilderness. Certain cultural and recreational destinations, such as Bodie State Historic Park and Mono Lake, are also considered noise-sensitive land uses. Due to land ownership patterns in Mono County, most developed sensitive land uses.

Worst-Case Daily Equivalent Sound Level (WLeq): The level of steady-state sound for a 24-hour period based on the measurement of the maximum sound event in dB for a one-hour period, and calculated for the total number of sound events experienced during a 24-hour period. This parameter assumes all noise creating events are equally loud.

4.14.3 OVERVIEW OF EXISTING CONDITIONS

4.14.3.1 Existing Noise Conditions in Mono County

Vehicular Noise. Most of the land in unincorporated Mono County is publicly owned and managed by a variety of federal, state, and local agencies. Privately owned lands are concentrated primarily in community areas, although there are also substantial areas of undeveloped private lands outside community areas. As a result of this pattern, numerous agencies have responsibility for regulation of the noise environment. Transportation is a major noise source in Mono County, including noise from highways and airports as well as certain recreational activities (such as snowmobiling and off-road vehicle use). Most residential uses and other noise-sensitive land uses are not adjacent to the highways or airports, and highways and airports are all considered low-volume facilities.

Industrial uses are major non-transportation related noise sources in Mono County, including batch plants, quarries, geothermal plants, construction, and similar uses. These facilities are generally located in industrial districts or on public land outside community areas. Commonly reported noise complaints include loud music, noisy private parties, and late-night or early-morning construction activity. Complaints are few in number and intermittent in nature, indicating that noise is not a serious problem in Mono County. The MEA notes that noise-sensitive receptors, including local schools and hospitals, have not experienced excessive exposure to noise. However, mining and geothermal operations are considered to be potential sources of concern for future noise exposure levels.

As noted, highways are a major source of noise throughout the county. In most communities in the county, the highway is the primary artery and Main Street; US 395 and 6, and SR 158, bisect communities throughout the county. These highways are considered low volume with less than 20,000 vehicles per day. Most of the land uses adjacent to the major thoroughfares in the county are non-residential uses. The MEA provides annual average daily and peak-hour traffic levels (1998 and 2008) for highways throughout the county as well as noise levels typically associated with motor vehicles, as shown below in Tables 4.14-1 and 4.14-2.

TABLE 4.14-1: ANNUAL AVERAGE DAILY TRAFFIC & PEAK HOUR TRAFFIC

ROUTE	1998 ADT	2008 ADT	CHANGE 1998-2008
AVERAGE ANNUAL DAILY TRAFFIC			
US 395 AT JCT. SR 108	2,750	2,975	225 (+8%)
US 395 AT JCT. SR 182	3,300	3,575	275 (+8%)
SR 167 AT MONO CITY	210	NA	NA/NA
US 395 AT LEE VINING	3,500	4,050	550 (+16%)
SR 158 AT JUNE LAKE	1,450	1,600	150 (+10%)
US 395 AT LONG VALLEY	5,500	6,800	1300 (+24%)
US 6 AT BENTON	1,200	980	-220 (-18%)
US 6 AT CHALFANT	1,550	1,900	350 (+23%)
PEAK-HOUR TRAFFIC			
US 395 AT JCT. SR 108	510	480	-30 (-6%)
US 395 AT JCT. SR 182	550	615	65 (+12%)
SR 167 AT MONO CITY	40	20	-20 (-50%)
US 395 AT LEE VINING	640	685	45 (+7%)
SR 158 AT JUNE LAKE	260	260	0/0
US 395 AT LONG VALLEY	170	1000	30 (+3%)
US 6 AT BENTON	130	100	-30 (-23%)
US 6 AT CHALFANT	170	120	-50 (-29%)

TABLE 4.14-2: AVERAGE VEHICLE NOISE LEVELS

MOTOR VEHICLES	DECIBELS
STANDARD SEDAN	64-76
COMPACT CAR	70-80
SPORTS CAR	70-87
PICKUP TRUCK	70-85
2-3 AXLE TRUCK	80-89
BUS	70-87
CHAINSAW	72-82
MOTORCYCLE (>350 CC)	74-95
INBOARD POWER BOAT	75-105
SNOWMOBILE	80-105
OFF-HIGHWAY VEHICLES	80-105

Traffic counts provided in the *Draft RTP* s suggest that average daily and peak hour traffic volumes in many areas of the county have declined between 2006-2012, as shown in Table 4.14-3 below, with increased traffic in only a few areas (June Lake Junction, eastern accesses to Yosemite, Mono Mills and Bodie):

TABLE 4.14-3: Average Daily Traffic (ADT) Volumes, Mono County State Highways

Route	Location	Peak Hour[a] 2006/2012	Peak Month[b] 2006/2012	Annual[c] 2006/2012
395	Junction 203 West [d]	1200/1200	11900/11100	9200/8000
	June Lake Junction [e]	660/790	6300/7400	4000/4200
	Tioga Pass Junction [f]	710/630	6700/6400	4000/4500
	Bridgeport [g]	670/630	6000/5700	3800/3400
	Sonora Junction [h]	790/500	4550/4300	3100/2900
	Nevada State Line	510/500	4950/4750	3750/3400
6	Junction 395 (Bishop)	360/110	4100/2000	3800/1890
	Benton Station	140/100	1150/1150	1100/960
	Nevada State Line	100/100	1150/1120	960/870
168	Oasis, Junction 266 north	40/40	270/290	160/170
266	Oasis, Junction 168	50/20	250/250	200/140
203	Minaret Summit	130/130	780/780	620/620
	Minaret Junction	1450/1400	13000/12400	11200/8750
	Old Mammoth Junction	1750/1600	17500/16400	15300/12500
158	June Lake Junction 395	290/280	2600/2850	1700/1470
	Grant Lake Junction 395	100/110	800/870	400/400
120	Yosemite East Gate	250/330	3200/3310	2100/2560
	Tioga Pass Junction 395	350/430	3300/4350	1300/1330
	Mono Mills Junction 395	100/130	830/1150	380/490
	Benton Station	60/60	550/500	400/300
167	Pole Line Junction 395	40/40	300/300	200/200
	Nevada State Line	20/20	200/170	100/110
270	To Bodie State Hist. Park	100/120	600/620	425/470
182	Bridgeport Junction 395	180/180	1700/1700	1100/1100
	Nevada State Line	50/50	380/400	250/250
108	Sonora Pass	150/180	980/570	480/470
	Sonora Junction 395	120/120	950/1050	550/670
89	To Monitor Pass	100/100	730/580	300/440

Airport and Helipad Noise. The MEA also provides information about the existing and anticipated types of aircraft used at the County airport facilities (Bryant Field in Bridgeport and Lee Vining Airport), as shown below in Tables 4.14-4 and 4.14-5. In addition to three airports, the MEA notes that helipads are located throughout Mono County including facilities at Mammoth Hospital in Mammoth Lakes, the medical clinic in Bridgeport, at the Pickel Meadow Marine Corps Base on SR 108, and multiple helipad facilities used by USFS, BLM and Cal Fire for firefighting. Table 4.14-6 summarizes

average noise levels associated with various types of aircraft, including helicopters.[1] None of the helicopter facilities operated by Mono County are used for commercial sightseeing or electronic news gathering, both of which are cited by FAA as generating the most significant adverse reactions from citizens and homeowner groups.[2]

TABLE 4.14-4: BRYANT FIELD AIRCRAFT & OPERATIONS FORECAST 2000-2020					
	2000	**2005**	**2010**	**2015**	**2020**
BASED AIRCRAFT	1	3	4	4	4
ANNUAL AIRCRAFT OPERATIONS BY TYPE OF OPERATION:					
LOCAL	375	375	500	500	500
ITINERANT	3000	3000	4000	4000	4000
TOTAL	3375	3375	4500	4500	4500
BY TYPE OF AIRCRAFT:					
SINGLE-ENGINE PROPELLER	3375	2275	4500	4500	4500
BY TYPE OF USER:					
GENERAL AVIATION	3375	3375	4500	4500	4500
AIRCRAFT OPERATIONS DISTRIBUTION					
PEAK MONTH	510	510	680	680	680
PEAK WEEK	130	130	130	130	130
AVERAGE DAY OF PEAK MONTH	17	17	23	23	23

TABLE 4.14-5: LEE VINING AIRPORT AIRCRAFT AND OPERATIONS FORECAST 2000-2020					
	2000	**2005**	**2010**	**2015**	**2020**
BASED AIRCRAFT	1	3	4	4	4
ANNUAL AIRCRAFT OPERATIONS BY TYPE OF OPERATION:					
LOCAL	500	500	667	667	667
ITINERANT	1500	1500	2000	2000	2000
TOTAL	2000	2000	2667	2667	2667
BY TYPE OF AIRCRAFT:					
SINGLE-ENGINE PROPELLER	2000	2000	2667	2667	2667
BY TYPE OF USER:					
GENERAL AVIATION	2000	2000	2667	2667	2667
AIRCRAFT OPERATIONS DISTRIBUTION					
PEAK MONTH	300	300	400	400	400
PEAK WEEK	80	80	100	100	100
AVERAGE DAY OF PEAK MONTH	10	10	13	13	13

TABLE 4.14-6: AVERAGE AIRCRAFT NOISE LEVELS	
AIRCRAFT	**DECIBELS**
SINGLE-ENGINE PROP	72-85
MULTI-ENGINE PROP	75-86
COMMERCIAL PROP	79-87
EXECUTIVE JET	84-95
TURBINE-LIGHT UTILITY HELICOPTER	69
JET TAKEOFF (AT 75')	150

Industrial Land Uses. Several noise-generating industrial sites, including batch plants and woodlots, operate in Mono County. Potential intrusive noise impacts are largely mitigated because batch plants are either situated within an

[1] FAA, *Nonmilitary Helicopter Urban Noise Study*, Dec 2004. http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/media/04nov-30-rtc.pdf.

[2] Personal communication with Brent Calloway, Mono County Community Development Department, June 17, 2015.

industrial district or on public land outside developed areas; woodlots, although allowed in commercial zones (along with high-density residential uses), are subject to a use permit that imposes conditions of operation.

Existing mining operations in the county include a pumice mine, several sand-and-gravel operations, a cinder mine, a kaolin mine, and a sericite mine. All of these operations are located outside developed areas, and noise impacts from these sites are minimal. The existing geothermal plants at Casa Diablo are also located away from developed areas, although their proximity to the Mammoth Lakes area has in the past resulted in some complaints about noise. All mining operations, including geothermal development, are subject to permits that impose conditions of operation, including mitigation of potential adverse noise. Heavy recreational use is another source of noise in Mono County. Numerous recreational vehicles and motorcycles, as well as snowmobiles and motorboats (and occasional outdoor events), adversely impact the noise environment in various locations throughout the county. No railroads traverse Mono County.

Community Noise Survey – Baseline 1980-81 Study and 1996 Update. During the fall of 1980 and the winter and spring of 1981, staff conducted noise monitoring at about 30 noise-monitoring sites throughout the county including noise-sensitive land uses and major thoroughfares (which were monitored over consecutive eight-hour periods (morning, midday and late), as well as other locations that were monitored for shorter 30-minute periods (also morning, midday and late). Data were used to calculate the Ldn, which was then plotted on community scale maps and adjusted to represent the 60 Ldn, 65 Ldn and 70 Ldn noise contours. Results (all of which are on file at the Mono County Planning Division) indicated that the 60 dB contours in Mono County are – with only four exceptions -- generally within 300' of the traveled way. The exceptions included three sites in Antelope Valley and one site in the Tri-Valley area.

The noise and traffic count data were updated during spring and summer of 1996 and when staff conducted a noise monitoring and traffic count field survey on County roads in each county community. The survey purpose was to determine ambient noise levels during peak periods around the Memorial Day weekend. Noise monitoring data collected in the field were converted to an Leq reading (an average of the dBA data). Results of the 1996 noise monitoring and traffic count field survey are shown in Table 4.14-7:

TABLE 4.14-7: 1996 NOISE MONITORING & TRAFFIC COUNT SURVEY

LOCATION	24-HR. TRAFFIC COUNT	LEQ
Old US 395 at Paradise Lodge	270	66 dB
Owens Gorge Rd next to US 395 at Sunny Slopes	557	64 dB
South Landing Road	1922	67 dB
Crowley Lake Drive at the fire station	668	66 dB
Leonard Avenue – June Lake	522	63 dB
Twin Lakes Road at Rancheria	988	30 dB
Bridgeport Airport – south end of runway	na	na
Eastside Lane – north of US 395 junction	272	60 dB
Cunningham Lane – east of US 395 junction	171	56 dB

The County again updated noise monitoring and traffic counts for the current *RTP/General Plan Update.* The new data include existing contours as of 2013, as well as projected contours for the year 2033, as shown in Table 4.14-8.

TABLE 4.14-8: Noise Monitoring and Traffic Counts, 2013 & 2033

LEE VINING		
Max Meter dB 72 @ 30'	**Distance from Edge of Pavement**	
1 Day Leq Contour	**Current (2013 AADT 3730)**	**Projected (2033 AADT 4120)**
60 dB	14'	14'
55 dB	24'	25'
50 dB	42'	44'
45 dB	74'	78'
BRIDGEPORT 1 (395 & School)		

Max Meter dB 62 @ 25'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2013 AADT 3200)	Projected (2033 AADT 3540)
60 dB	4'	4'
55 dB	7'	7'
50 dB	12'	13'
45 dB	21'	22'

BRIDGEPORT 2 (182 Jct 395)		
Max Meter dB 67 @ 25'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2015 AADT 1155)	Projected (2025 AADT 1733)
60 dB	4'	5'
55 dB	7'	8'
50 dB	12'	14'
45 dB	21'	25'

ANTELOPE 1 (395 @ Larson)		
Max dB 76 @ 25'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2015 AADT 3530)	Projected (2025 AADT 3890)
60 dB	16'	17'
55 dB	29'	30'
50 dB	51'	54'
45 dB	91'	95'

JUNE LAKE 1 (395 Down Canyon)		
Max dB 70 @ 15'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2012 AADT 1172)	Projected (2032 AADT 1295)
60 dB	3'	3'
55 dB	6'	6'
50 dB	10'	10'
45 dB	17'	18'

HAMMIL VALLEY		
Max dB 75 @ 15'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2007 AADT 1100)	Projected (2027 AADT 1220)
60 dB	5'	6'
55 dB	9'	10'
50 dB	16'	17'
45 dB	29'	30'

LONG VALLEY 1 (395 @ Crowley Lake Dr)		
Max dB 67 @ 210'	Distance from Edge of Pavement	
1 Day Leq Contour	Current (2013 AADT 7020)	Projected (2033 AADT 7760)
60 dB	67'	71'
55 dB	119'	127'
50 dB	212'	225'

45 dB	378'	400'

State and Federal Highways. 1995 Ldn contours for state and local highways (provided to the County by Caltrans) show that traffic-related noise impacts along state and federal highways varied little from the baseline data collected in 1980-81. Traffic volumes along these highways were, in general, lower in 1995 than in 1990, and have since risen to 1990 levels indicating that noise impacts have not changed significantly and adequately represent current conditions along state and federal highways.

Bodie State Historic Park. Ambient noise levels at Bodie State Historic Park (measured in 1990) are low. Visitors to the park frequently comment on the quietness, which is viewed as adding to the sense of place. The California Department of Parks and Recreation recommends using existing ambient background noise studies as noise standards for the park.

Noise-Sensitive Areas. Noise-sensitive receptors include schools, hospitals, homes and certain open-space areas. Most noise-sensitive receptors in the county, such as hospitals and schools, are located along secondary roadways or situated on parcels adjacent to major thoroughfares, but large enough to provide adequate setbacks from the traveled way; residential areas are also often located along secondary roads. Certain open-space areas are noise sensitive due to their use for recreation or their value as wildlife habitat or wilderness; these include the Hoover, Minaret, Ansel Adams, John Muir, Granite Mountain, Boundary Peak and White Mountain wilderness areas, several wilderness study areas, the designated "roadless areas" in Inyo and Humboldt-Toiyabe national forests; and Bodie State Historic Park.

4.14.4 REGULATORY SETTING[3]

4.14.4.1 Federal and International Regulations

There are no federal plans, policies, regulations, or laws that directly pertain to the County's consideration or adoption of the RTP/General Plan Update, including the Noise Element. However, various federal agencies have issued programs and guidelines that are helpful in measuring noise and setting noise-exposure standards. The USEPA Federal Noise Control Act of 1972 clearly identified noise as a threat to human health and welfare; EPA recommended that noise be addressed at more local levels of government and transferred noise regulation to state and local governments. The Federal Transit Administration (FTA) has developed significance criteria to evaluate noise impacts from surface transportation, as presented in FTA's 2006 *Transit Noise Impact and Vibration Assessment*. Traffic noise is governed by CFR 23 Part 772. FHWA established noise assessment procedures and abatement criteria in *Highway Traffic Noise: Analysis and Abatement Guidance* (2011). Title 14 CFR, Part 36 establishes maximum acceptable noise levels for aircraft operating in the U.S. based on model year, aircraft weight, and the number of engines. The FAA Part 150 program encourages airports to prepare noise-exposure maps depicting land uses that are incompatible with high noise levels, and the Federal Railroad Noise Emission Compliance Regulation (49 CFR Part 210) prescribes minimum compliance regulations for enforcement of railroad noise emission standards adopted by USEPA. The Universal Building Code contains noise insulation standards for hotels, motels, dormitories, apartment houses and other residential dwellings. The code states that interior noise levels shall not exceed 45 dBA.

4.14.4.2 State Regulations

California Airport Noise Standards. PUC §21670 et seq. promotes compatibility between public use and military airports and the land uses that surround them. California airport noise standards, as well as Federal Aviation Regulations, establish a CNEL of 65 dBA as the maximum acceptable noise exposure for residential land uses. This criterion, however, is set primarily with regard to air carrier airports in urban locations. For general aviation airports located in comparatively quiet rural settings such as Mono County, a 60- or even 55-CNEL standard is suggested.

California Code of Regulations Title 24. *CCR* Title 24 sets standards for interior noise levels in all new single-family and multifamily residential units. The standards require acoustical studies prior to construction wherever the existing Ldn

[3] The reader is also referred to the interrelated regulations outlined in EIR §4.3, Air Quality and Greenhouse Gas Emissions.

exceeds 60 dBA, with mitigation to limit maximum Ldn levels to 45 dBA in any habitable room, including residential insulation standards that are implemented during the building process.

California General Plan Guidelines. The Office of Planning and Research publishes General Plan Guidelines that include guidance for determining acceptable and unacceptable community noise exposure limits for various land use categories. Residential uses and schools are generally considered acceptable where exterior noise levels do not exceed 60 dBA Ldn, and unacceptable in areas exceeding 70 dBA; higher limits apply to commercial uses. Conditionally acceptable ranges are also given, depending on noise insulation and reduction features.

California Harbors and Navigation Code. §650-674 of this Code regulates vessels and associated equipment used on waters subject to state jurisdiction. Code sets the following standards for motorized recreational vessels (RVs):

- 90 dBA for engines made before January 1993; and
- 88 dBA for engines made on or after January 1993.

Sale of internal combustion engines for use on motorized RVs is prohibited if the following standards are exceeded:

- 86 dBA (measured at 50') for engines made between January 1974 and January 1976;
- 84 dBA (at 50') for engines made between January 1976 and January 1978; and
- 82 dBA (at 50') for engines made after January 1978.

The Mono County Sheriff's Department enforces noise-related provisions of the Harbors and Navigation Code.

Military Land Use Compatibility Planning Requirements. Pursuant to SB 1468 (2002), CGC §65302 requires local governments to consider impacts to military operations in the general plan. CGC §65302 stipulates a notification process, and also requires that the General Plan Noise Element must analyze and quantify current and projected noise levels for ground stationary noise sources, including military installations identified by local agencies as contributing to the community noise environment. (CGC §65302(f)(1)(F)). The requirements of CGC §65302 are valid statewide.

Motor Vehicle Code. §38365A of the State Vehicle Code requires that off-road vehicles must be equipped with a muffler to reduce noise to an acceptable level; § 38370 defines acceptable noise levels according to the age of the vehicle (i.e., pre-1973, 92 decibels; 1973-74, 88 decibels; and post-1974, 86 decibels). In Mono County, noise-related provisions of the Motor Vehicle Code are enforced by the Sheriff's Department.

4.14.4.3 Local Regulations

Airport Land Use Plans. ALUC Plans for Bryant Field, Lee Vining Airport and Mammoth Yosemite Airport regulate development in the ALUC planning boundaries to minimize airport noise exposure. The Mammoth Yosemite Airport Land Use Plan and the Master Plans for Mammoth Yosemite Airport and Bryant Field in Bridgeport include policies to regulate noise at those facilities. In the very low ambient-noise environment of the Mammoth Yosemite Airport any operations of moderately loud aircraft are potentially audible, especially when winds are calm. Any location frequently overflown by arriving and departing aircraft is subject to single-event noises that can be obtrusive. Procedures telling pilots to avoid overflight of noise-sensitive areas have been established. The Mammoth Yosemite Airport Land Use Plan also includes policies restricting future development in noise-impacted areas in the airport vicinity and requiring extra soundproofing to limit interior noise levels.

Mono County General Plan. The *Circulation Element* of the General Plan includes policies to reduce traffic noise levels (the most significant source of environmental noise in Mono County) by minimizing congestion and facilitating smooth traffic flow. *The Land Use Element* contains policies to avoid the juxtaposition of incompatible land uses unless potentially significant impacts (including noise) are adequately mitigated. The *Noise Element* contains policies to avoid the juxtaposition of incompatible land uses unless potentially significant impacts (such as noise impacts) are adequately mitigated, to enforce existing noise ordinances and policies, and to assess and mitigate the impacts of proposed noise-generating land uses.

Mono County Noise Ordinance. Mono County Code, Ch. 10.16 defines limits for excessive noise and sets noise level limits for land uses. The ordinance is proposed to be updated with the current *RTP/General Plan* Update, and includes procedures for measuring noise, noise level limits, prohibitions, exemptions, enforcement measures and the process for

variances and appeals. In addition to setting maximum allowable noise levels, the County implements additional noise regulations depending on the noise source and land use. Acceptable noise exposure ranges are specified for various land uses to avoid and reduce potential conflicts, based on maximum allowable noise exposures. The building official is designated as the Noise Control Officer for the County and is empowered to enforce those regulations. The Planning Division has the ability to regulate noise generating land use activities through its permit processes, which allow the division to impose conditions of operation and to set limits for noise emissions.

4.14.5 SIGNIFICANCE CRITERIA

Appendix G of the California CEQA Guidelines offers the following criteria for determining the significance of noise impacts. A project would have a potentially significant impact on noise if it would:

a) **Expose persons to or cause a permanent or temporary significant increase in ambient noise levels or result in noise levels exceeding standards set by the general plan or noise ordinance or other applicable standards.**
b) **Expose persons to or generate excessive groundborne vibration or groundborne noise levels.**
c) **Expose people residing or working in the project area to excessive noise levels for a project located in an airport land use plan or (where such a plan has not been adopted) within two miles of a public airport or public-use airport or a private airstrip.**

4.14.6 ENVIRONMENTAL IMPACTS AND MITIGATING POLICIES AND ACTIONS

IMPACT 4.14(a): Would implementation of the proposed RTP/General Plan Update expose persons to or cause a permanent or temporary significant increase in ambient noise levels or result in noise levels exceeding standards set by the general plan or noise ordinance or other applicable standards?

LESS THAN SIGNIFICANT. Noise control over a number of noise sources (such as on-road vehicles or aircraft from the nearby airport) is preempted by state or federal regulations. However, Mono County does establish noise and land use goals and policies to ensure that noise receivers are adequately protected in terms of the noise sensitivity of various land uses. The MEA notes that the future noise environment in Mono County will be determined by changes in the operational activity of existing noise sources, expansion of existing sources, and development of new noise sources. Data on the operational activity of existing noise sources shows little change between 1998 and 2008, particularly for traffic (the major source of noise in Mono County).

The greatest potential increase in operations activity is assumed to be in traffic volumes. Although traffic volumes on most state and federal highways increased slightly between 1998 and 2008, data developed for the *Draft RTP* indicates that traffic increases over current Average Daily Traffic figures will not be significant. Traffic demand projections for the unincorporated areas of Mono County are presented in Table 4.14-9. The modest increases in forecast traffic demand reflect the fact that policies in the Mono County Land Use Element focus future growth in and adjacent to existing communities, particularly the unincorporated communities in Antelope Valley, Bridgeport Valley, June Lake, Wheeler Crest/Paradise, the Tri-Valley, and Long Valley.

TABLE 4.14-9: Traffic Demand Projections, Mono County

	Estimated Avg. Vehicle Trips	Estimated Peak Hour Vehicle Trips	Estimated % Increase over current ADT
Antelope Valley	334.2	35.7	1.5 %
Bridgeport Valley	330.4	35.2	1.2 %
Mono Basin	120.8	12.9	2.5 %
June Lake	271.4	27.7	14.5 %
Long Valley	328.8	33.9	4.9 %
Tri-Valley	172.5	18.6	9.8 %

As shown, ADT levels are forecast to increase between a low of 1.2% (in Bridgeport Valley) to a high of 14.5% (in June Lake). The RTP analysis notes that these estimated increases over current Average Daily Traffic (ADT) figures are not significant; the performance conditions on local streets are not generally a concern since those streets generally carry only local traffic. North Shore Drive into June Lake is expected to help mitigate the larger expected traffic increase in June Lake. Even a substantial increase in traffic would not be expected to produce a significant increase in noise impacts. The MEA notes that a 62% increase in operational activity would produce an increase of 2 dB, while an increase of 22% to 38% would result in a 1-dB increase; both are below the level of perception by the human ear.

Similarly, the Draft Mono County *Noise Element* concludes that traffic volumes on state and federal highways have remained fairly stable over the past 20 years (due to land use patterns, low population and relatively low traffic volumes), and are generally not expected to significantly increase in most areas over the life of this plan (to 2033); exceptions include June Lake (with a 14.5% increase) and Tri-Valley (with a 9.8% increase).

The draft *Noise Element* incorporates noise exposure criteria into land use planning in order to reduce the potential for future conflicts between noise and land use. This goal is achieved by specifying acceptable noise-exposure ranges for various land uses throughout the county. Mono County uses the maximum allowable noise exposures listed in Table 4.14-10 to determine land use compatibility when evaluating proposed development projects.

TABLE 4.14-10: Maximum Allowable Exterior Noise Exposure by Land Use

Land Use	Noise Level (CNEL)						
	45-50	51-55	56-60	61-65	66-70	71-75	76+
Residential – Low Density Single Family, Duplex							
Residential – Multifamily, Mixed Use							
Transient Lodging							
Public Uses – Schools, Libraries, Hospitals, Community Centers, Senior Centers							
Passive Recreational Areas, Cultural Resource Areas, Natural Habitat Areas							
Community Parks and Athletic Fields							
Commercial Uses, Offices, Retail							
Light Industrial Uses							
Industrial, Utilities, Mining, Ranching, Agriculture							

	ACCEPTABLE – Specified land use is satisfactory, based on the assumption that any structures involved are of normal, conventional construction, without special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE – New construction or development should be undertaken only after conducting a detailed noise analysis to determine if noise reduction measures are necessary and included in the project design.
	UNACCEPTABLE – New construction or development should not be undertaken.

A land use located in an area identified as "acceptable" indicates that standard construction methods would attenuate exterior noise to an acceptable indoor noise level and that people can carry out outdoor activities with minimal noise interference. Land uses that fall into the "conditionally acceptable" noise environment should have an acoustical study that considers the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with sleep, speech, or other activities characteristic of the land use. For land uses indicated as "conditionally acceptable," structures shall able to attenuate exterior noise to the indoor noise levels indicated in Table 4.14-10. For land uses where exterior noise levels fall within the "unacceptable" range, new construction generally should not be undertaken. All new development in Mono County is required to meet the California Building Noise Standards in addition to compliance with requirements of the Noise Element.

Ambient noise levels were presented in Table 4.14-7 of the baseline overview, which showed that ambient noise at most 1996 measurement locations was near or above the 65 dB(A) conditionally acceptable level for residential land uses,

public uses, and passive and active recreational uses. The highest measurement (at South Landing Road) was at 67 dB; all other readings were at lower levels. Noise contour maps have been developed for the communities of Bridgeport, Antelope Valley, Lee Vining, Hammil Valley and Long Valley; Figure 4-14-1 offers a representative contour map (for Lee Vining).

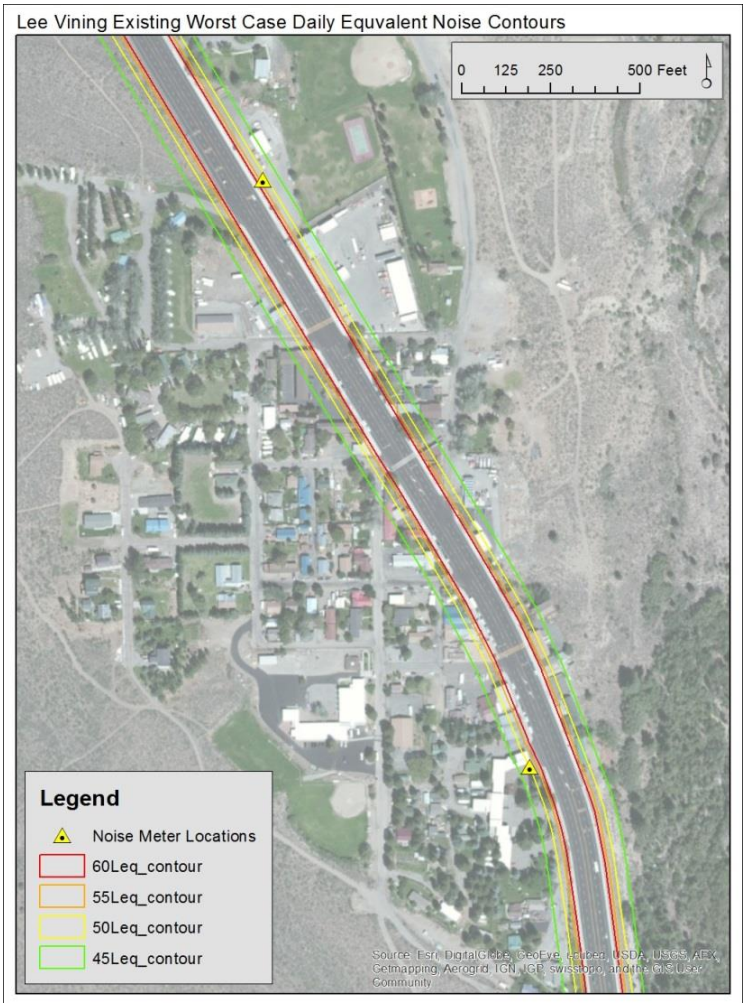

FIGURE 4.14-1: Noise Contour Map for Lee Vining

As previously presented in Table 4.14-4 and discussed more fully in Impact 4.14-3, aircraft use at Bryant Field and Lee Vining Airport has been stable and is expected to remain so through at least 2020. Other noise sources, such as industrial and mining uses, remain relatively few in number. The proposed General Plan *Land Use Element* generally separates industrial and industrial park land uses from residential community uses, with Bridgeport being an exception, and resource extraction would be an allowed use only in the Mammoth vicinity, which has limited residential potential due to land use designations. Commercial and service commercial land uses would also be restricted to the communities of Bridgeport, Lee Vining, Long Valley, Chalfant, Benton and June Lake. Potentially noise-intensive uses in these areas would be subject to the noise exposure limits shown in Table 1 and the noise attenuation requirements reviewed in Table 4.14-11 (Mitigating Policies) which require project-specific acoustical analysis of projects where existing and/or project-related noise levels exceed County noise standards.

If approved and implemented, a biomass facility is another use that could result in noise impacts to surrounding land uses. Although the Biomass Feasibility Study indicates, in the FAQ sheet, that noise associated with the thermal biomass unit will be limited to occasional truck traffic for the delivery of wood chips, the experience of existing biomass facilities points to the importance of careful siting, including complaints about odors and noise, and supports a

recommendation that biomass plants should be located as close as possible to the fuel supply, and far from residential neighborhoods.[4] The Feasibility Study recommends that the biomass facility be co-located in Mammoth Lakes at the Mammoth Mountain garage, located on Minaret Road about halfway between the town and the ski area. Depending on the location and characteristics of the site ultimately selected, noise from this facility has potential to cause annoyance or conflict with surrounding homes. A mitigation recommendation was previously provided in Section 4.3 (Air Quality and Greenhouse Gases) to address this issue.

A wide range of projects will be undertaken over the lifetime of the *Draft RTP/General Plan Update.* All will require further review, including compliance with applicable laws of CEQA (and often NEPA), most will also require regulatory and interagency approvals, design and engineering plans, permits and other discretionary actions prior to implementation. Many of the future activities, particularly construction activities, will have the potential to cause a significant temporary significant increase in ambient noise levels, which are low in most areas of Mono County. Given the proximity of land uses in most Mono County communities, it is anticipated that many future projects would directly impact noise-sensitive land uses during construction phases.

Noise levels for conventional construction activities would increase to levels as high as 85 dB (average); higher noise levels may occur for some types of project construction. Given the standard sound decay rate of 6 dB per doubling of distance, as well as irregular terrain, construction equipment noise may in many areas of the county be audible as far as several thousand feet from the source. County permitting would limit construction activities to daytime hours of lesser noise (typically weekdays from 7 a.m. to 5 p.m., 8 a.m.-5 p.m. on Saturdays, and no construction on Sundays). Because construction noise ceases when construction is complete, this impact is considered to be adverse, but **less than significant**. In combination with the policies recommended in the *Draft Noise Element,* the County's standard limits on hours of construction would be adequate to mitigate these effects, and no supplemental mitigation is required.

Implementation of *RTP/General Plan* projects would also cause, in some cases, a long-term increase in ambient noise levels on individual project sites and surrounding areas from noise generated by added traffic, residents and future uses at the project locations. Information in EIR §4.12 (Population & Housing) indicates that the population in the unincorporated area will grow from 5,968 in 2010 to an estimated 7,398 in 2040. This increase of 1,430 residents will reside in communities distributed over the roughly 1,210-square mile County land area. The comparatively low ambient noise levels measured in 1996 and 2013, combined with the modest population gains forecast over the next 25 years and appropriate siting and juxtaposition of land uses, as well as compliance with the maximum allowable exterior noise-exposure levels presented in Table 4.14-10 and the mitigating policies and actions contained in the *Draft RTP/General Plan Update* (as presented below), indicate that implementation of the proposed RTP/General Plan Update would not cause a substantial temporary or permanent increase in ambient noise levels, or expose people to noise levels exceeding adopted standards. The impacts are thus found to be **less than significant.**

RTP/GENERAL PLAN POLICIES AND ACTIONS THAT MITIGATE IMPACTS ON NOISE

Please refer to Table 4.14-11 in Appendix D

IMPACT 4.14(b): Would implementation of the proposed RTP/General Plan Update expose persons to or generate excessive groundborne vibration or groundborne noise levels?

LESS THAN SIGNIFICANT.[5] Groundborne noise and vibration are generated by transportation sources (particularly road and rail traffic) as well as construction equipment and blasting activities. Highly fractured but relatively hard rock

[4] National Renewable Energy Laboratory (http://www.nrel.gov/docs/fyooosti/26946.pdf), *Lessons Learned from Existing Biomass Power Plants,* prepared by G. Wiltsee Appel Consultants, Inc., February 2000 (NREL/SR-570-26946).

[5] Information in this section was based on a Vibration and Noise Analysis prepared for Mono County by Giroux & Associates as part of the *Rock Creek Ranch Specific Plan and Draft EIR*, July 2008.

deposits underlay much of Mono County, and boulders are also present in many locations. In such locations, construction may require that boulders be removed (often using a hydraulic ram to break and crush the rock) and near-surface rock deposits may require blasting. The release of energy from a blast can impact off-site locations through ground vibrations, air blasts and dust. When a blast is detonated, most of the energy produced travels through the rock and soil in the form of shock pressure waves and subsequent gas pressure. These vibrations cause individual particles to oscillate in random directions which, when intense, can cause structural damage. The oscillations weaken with distance as they expend energy passing through earth materials. Various studies have demonstrated that both the *frequency* of the vibration waves and the *peak particle velocity* are contributing factors in blast-related damage. Resulting impacts would vary depending on materials present and techniques used.[6]

Ground vibrations are a function of the distance from a blast to a given location and the quantity of explosives detonated at a given time. These two factors can be placed into a mathematical equation to determine safe distance limitations. When explosive charges are detonated at intervals of eight-thousandths of a second (8 ms), or more, they will not amplify one another. Therefore, the critical factor is not the total quantity of explosives consumed but rather the quantity detonated in one instant. To the human ear, a blast may sound as though all explosives detonated simultaneously, although they may have been several small blasts 8 ms or more apart. Scaled distance therefore considers the distance from the blast and the maximum quantity of explosives detonated within any 8 ms period.

Air blast is a compressive wave that travels through the atmosphere. If this wave is audible, it is called noise; at frequencies below 20 *hz* it is inaudible and referred to as concussion. This wave creates a pressure in the air greater than normal atmospheric pressure, and can be expressed as pounds per square inch (psi). It can then be converted to decibels (dB), which is a more common expression for sound. Air blast is primarily the result of energy that has not been confined at the blast site and is allowed to escape into the atmosphere. To achieve satisfactory fragmentation, it is essentially impossible to avoid some energy release, and when a sound wave enters the atmosphere it is virtually uncontrollable although certain natural conditions may determine its direction and local intensity. Thermal inversions in the atmosphere, or reflection off surfaces such as surrounding hills, will cause the wave to be refracted or bent away from its natural course. Wind will also distort the wave pattern and wrap it downward and possibly back toward the earth. The primary impact of air blasts is the rattling of windows and noise that startles the receiver; actual damage from air blasts is uncommon. On some occasions, the ground vibrations and air blast waves appear simultaneously, which can magnify the apparent intensity. The *Draft Noise Element* incorporates policies and actions that are specifically addressed to impacts associated with groundborne vibration and noise. As shown in Table 4.14-11, Policy 1.C.9 requires any project that would involve blasting or vibration to prepare an analysis that includes, among other elements, noise control measures and a monitoring program that evaluates the effectiveness of mitigation measures. In combination with the County's exterior noise standards and limits on construction, the mitigating policies and actions will reduce potential vibration impacts to **less than significant levels**.

RTP/GENERAL PLAN POLICIES AND ACTIONS THAT MITIGATE VIBRATION IMPACTS

Please refer to Table 4.14-11 in Appendix D

IMPACT 4.14(c): Would implementation of the proposed RTP/General Plan Update expose people residing or working in the project area to excessive noise levels for a project located in an airport land use plan or (where such a plan has not been adopted) within two miles of a public airport or public-use airport or private airstrip?

LESS THAN SIGNIFICANT. The FAA notes that multiple noise sources impact an aviation environment. Noise is produced by aircraft equipment power plants, transmission systems, jet efflux, propellers, rotors, hydraulic and

[6] Note that vibration impacts also occur with seismic shaking, when the sudden movement of a fault releases energy that travels through the earth as seismic waves. When the seismic waves reach the earth's surface, they result in earthquake ground motion. Impacts associated with seismic shaking are addressed separately in EIR §4.5 (Geology).

electrical actuators, and many other sources. Noise is also caused by the aerodynamic interaction between ambient air (boundary layer) and the surface of the aircraft fuselage, wings, control surfaces, and landing gear. Although airports are considered to be major noise sources in Mono County (second to highway transportation), the Noise Element identifies both Bryant Field and Lee Vining Airport as low-volume facilities. Aircraft operations at both facilities are limited to single-engine aircraft, both at present and through the five-year planning forecast period.

The draft Mono County Land Use Element notes that at Bryant Field Airport, the 55 dB CNEL contour projects partially into the residential area to the east of the airport. The airport noise impact to this area is infrequent and intermittent, and therefore not significant; this same area experiences greater and more frequent noise impacts from the adjacent highway traffic on SR 182. Single-engine aircraft operations at Bryant Field increased from 3,375 in 2005 to 4,000 in 2010. Although a drastic increase in future airport activity could cause the noise impacts at Bryant Field to become significant, the forecast indicates that single-engine aircraft operations at Bryant Field will continue at a rate of 4,000 per year through at least 2020.

Single-engine aircraft operations at Lee Vining increased from 2,000 in 2005 to 2,667 in 2010. No residential development or other sensitive noise receptors presently exist or are planned adjacent to the Lee Vining Airport. Although the RTP indicates that Lee Vining Airport is among the public airports closest to Yosemite National Park, and has potential for increased use by visitors to Yosemite, operations at Lee Vining are expected to continue at 2,667 per year through at least 2020.

Master Plans for both Bryant Field and Lee Vining Airport indicate that projected increases in aircraft volume at those airports will not significantly affect noise contours. Mammoth Yosemite Airport (which is regulated by the Town of Mammoth Lakes) is located outside the town boundaries. The Mammoth Yosemite Airport Layout Update Plan forecasts that aircraft use at the facility will increase in volume and in the type of aircraft (including medium-sized turbine-powered aircraft). Enplanements are estimated by Mammoth Mountain Ski Area to increase from 26,200 in 2011 to an estimated 130,500 in 2028 (based on a 60% load factor), reaching 140,000 in 2030.[7] Although noise estimates were not updated as part of the 2012 Layout Plan, the Town of Mammoth Lakes 2007 *General Plan Update EIR*[8] found that the airport has relatively small CNEL 70 and 75 noise exposure areas; all areas exposed to CNEL 65 and higher are within the airfield boundary on either airport property or on vacant land that is controlled by the airport through leases or use permits. The *General Plan EIR* concluded that airport improvements would comply with applicable regulatory requirements and not result in the exposure of sensitive receptors to excessive noise levels.

The considerations above indicate that a) Mono County implementation of the proposed *RTP/General Plan update* would not expose people residing or working in the vicinity of either Bryant Field or Lee Vining Airport to excessive noise levels, and b) improvements undertaken by the Town of Mammoth Lakes to the Mammoth Yosemite Airport would not expose that airport facility to excessive noise levels. Policies and actions are recommended in the *draft Noise Element*, the *Draft RTP*, and the draft General Plan *Land Use Element* to ensure that existing and proposed land uses (including airport operations) are consistent with applicable standards and regulations (see Table 4.14-11). Impacts would be ***less than significant.***

RTP/GENERAL PLAN POLICIES AND ACTIONS THAT MITIGATE VIBRATION IMPACTS

Please refer to Table 4.14-11 in Appendix D

[7] Town of Mammoth Lakes, *Revised Airport Layout Update Plan for Mammoth Yosemite Airport.* May 2012. http://www.ci.mammoth-lakes.ca.us/DocumentCenter/Home/View/2906

[8] Town of Mammoth Lakes, *General Plan Update Draft EIR,* May 2007. http://www.ci.mammoth-lakes.ca.us/DocumentCenter/Home/View/205